

Transmitted Via Facsimile to (571) 273-8300

PATENT
132733 (SPLG 1088)

IN THE CLAIMS

1. (currently amended) A method of examining a patient, the method comprising:

aligning a patient table in an opening of a gantry of a C-arm unit that includes a CZT photon detector and an x-ray source;

imaging a patient utilizing a first imaging modality during a first portion of a scan using the CZT detector;

imaging the patient utilizing a second imaging modality during a second portion of the scan using the CZT detector wherein the second imaging modality is different than the first imaging modality; and

imaging the patient utilizing the first imaging modality during a third portion of the scan using the CZT detector.

2. (canceled)

3. (original) A method in accordance with Claim 1 further comprising moving the patient table along at least one of a patient table orthogonal axis when imaging the patient utilizing at least one of the first imaging modality and the second imaging modality.

4. (original) A method in accordance with Claim 1 further comprising rotating the gantry around a longitudinal axis of the patient table when imaging the patient utilizing at least one of the first imaging modality and the second imaging modality.

5. (original) A method in accordance with Claim 4 wherein the x-ray source is configured to emit x-rays in a beam having a predetermined fan angle, said method further comprising rotating the gantry around a longitudinal axis of the patient table less than one hundred and eighty degrees of rotation when imaging the patient utilizing at least one of the first imaging modality and the second imaging modality.

6. (previously presented) A method in accordance with Claim 4 wherein the x-ray source is configured to emit x-rays in a beam having a predetermined fan angle, said method further comprising rotating the gantry around a longitudinal axis of the patient table approximately one hundred and eighty degrees plus the fan angle of rotation when imaging

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the patient utilizing at least one of the first imaging modality and the second imaging modality.

7. (original) A method in accordance with Claim 1 further comprising moving at least one of the CZT photon detector and the patient table to follow a contour of the patient during at least a portion of a scan.

8. (original) A method in accordance with Claim 1 wherein the patient includes a radiopharmaceutical and wherein imaging the patient utilizing a first imaging modality comprises imaging the patient using a nuclear medicine modality.

9. (original) A method in accordance with Claim 8 wherein imaging the patient using a nuclear medicine modality comprises imaging the patient using single positron emission computed tomography (SPECT).

10. (original) A method in accordance with Claim 9 wherein imaging the patient using a nuclear medicine modality comprises imaging the patient using a pair of photon detectors using a SPECT modality.

11. (original) A method in accordance with Claim 1 wherein imaging a patient utilizing a first imaging modality comprises imaging the patient using a computer tomography (CT) modality.

12. (original) A method in accordance with Claim 11 wherein imaging the patient using a CT modality comprises imaging the patient using a cone-beam CT modality.

13. (original) A method in accordance with Claim 1 further comprising:

monitoring a cyclic physiological function within the patient; and

triggering at least one of the first modality and the second modality during at least one preselected portion of the cyclical physiological function.

14. (currently amended) An imaging system comprising a gantry unit having an x-ray source for generating x-rays and a CZT detector configured to detect emission gamma photons and transmission x-ray photons, and a C-arm configured to move the x-ray source and detector along an image acquisition path between at least first and second imaging positions defining a plurality of alternating scan portions that utilize different imaging

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modalities.

15. (original) An imaging system in accordance with Claim 14 wherein said gantry is at least one of rotatably coupled to a gantry holder and slidably coupled to the gantry holder.
16. (original) An imaging system in accordance with Claim 15 wherein said x-ray source is configured to emit x-rays in a beam having a predetermined fan angle and wherein said gantry is configured to slidably translate along said gantry holder an angular distance of approximately one hundred eighty degrees plus the fan angle of the x-ray source.
17. (original) An imaging system in accordance with Claim 14 wherein said x-ray source comprises a cone-beam x-ray source.
18. (canceled)
19. (original) An imaging system in accordance with Claim 14 wherein said detector comprises a pair of detectors inclined at an angle with respect to each other.
20. (original) An imaging system in accordance with Claim 19 wherein said detector comprises a pair of detectors inclined at an angle of approximately ninety degrees with respect to each other.
21. (original) An imaging system in accordance with Claim 19 wherein at least one of said pair of detectors comprises cadmium zinc telluride (CZT).
22. (original) An imaging system in accordance with Claim 19 wherein at least one of said pair of detectors is positioned substantially perpendicularly opposed to said x-ray source.
23. (original) An imaging system in accordance with Claim 22 wherein said at least one of said pair of detectors that is positioned substantially perpendicularly opposed to said x-ray source comprises CZT.
24. (original) An imaging system in accordance with Claim 14 further comprising a patient table configured to translate along at least one of three axes.
25. (original) An imaging system in accordance with Claim 24 wherein said

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system is configured to control at least one of the patient table and the gantry to cause the detector to follow a contour of an object to be scanned.

26. (original) An imaging system in accordance with Claim 14 including an imaging isocentric area located between said x-ray source and said detector, said imaging isocentric area remaining substantially constant when said gantry moves along said image acquisition path.

27. (original) An imaging system in accordance with Claim 14 wherein said imaging system comprises a gantry support base wherein said support base is coupled to a rail system, said rail system operable to move said gantry unit along at least one axes.

28. (original) An imaging system in accordance with Claim 27 wherein said rail system is coupled to at least one of a floor, a ceiling, and a wall of an examination room.

29. (original) An imaging system in accordance with Claim 14 wherein said imaging system comprises a gantry support base wherein said gantry support base is a mobile support base.